

## **ABSTRACT OF THE DISCLOSURE**

The invention considers a plurality of receiving nodes (120-1, 120-2 and 120-3) such as base stations in a wireless network. Each receiving node (120) converts a superposition of signals received from a plurality of transmitting nodes such as mobile terminals (10) to produce soft complex signal information. A basic idea according to the invention is to collect the soft complex signal information associated with the considered plurality of receiving nodes, for example in a central node (130) and jointly detect signal information transmitted from at least a subset of the plurality of transmitting nodes (10) based on the collected soft complex signal information. The collected soft signal information generally retains phase and amplitude information, and the transmitted signals are preferably detected in a joint detection process based on a complex channel representation and collected soft signal information. In a truly distributed realization, adjacent receiving nodes or base stations exchange soft complex signal information with each other, thus forming at least partially overlapping groups for distributed collection of information, detection and subsequent decoding in each base station.